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Attorneys for Defendant
THE DIRECTV GROUP, INC.

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN JOSE DIVISION

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| IN RE ACACIA MEDIA TECHNOLOGIES CORPORATION | Case No. C-05-01114 JW (HRL)<br><br>MDL No. 1665<br><br>**DECLARATION OF ANDREW LIPPMAN IN SUPPORT OF DEFENDANT DIRECTV GROUP, INC.'S MOTION FOR RECONSIDERATION OF THE COURT'S CONSTRUCTION OF THE TERM "TRANSCEIVER"**<br><br>Hearing Date: September 8, 2005<br>Hearing Time: 9:00 a.m.<br>Courtroom: Honorable James Ware |

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I, Andrew Lippman, declare as follows:

1. I, Andrew B. Lippman am a citizen of the United States and reside in Salem, Massachusetts.

2. I have been retained by counsel for DIRECTV GROUP, INC. (DIRECTV), as an expert witness regarding this patent infringement litigation with respect to U.S. Patent Number 6,144,702 (the '702 patent). Specifically, I have been retained to testify on my opinion about the term "transceiver" as used in the '702 patent.

3. This declaration reflects my opinions and expected testimony with respect to the issues that I have been asked to address. I reserve the right to supplement this declaration, if appropriate, based upon information learned subsequently, for example, from Acacia's *Opposition Brief* including expert declarations supporting its *Opposition Brief.*

4. I have testified by deposition in three cases.

5. I am being compensated for my work in this case at my customary rate of $450 per hour, plus expenses.

## I. QUALIFICATIONS

6. I am currently an employee of the Massachusetts Institute of Technology, a teaching and research university whose mission is "to advance knowledge and educate students in science, technology and other areas of scholarship that will best serve the nation and the world in the 21st century." In particular, I work in the MIT Media Laboratory, a teaching and research facility that comprises a staff of more than 40 faculty, senior research staff and visiting scientists, 126 students, a large number of undergraduate researchers and associated support and technical staff.

7. I have a bachelor's of Science and Masters degree from MIT and a Ph.D. from EPFL.

8. My current appointment is as a Senior Research Scientist at MIT. In addition, I am the departmental graduate officer for the Media Arts and Sciences (MAS) graduate program. I directly advise 6 graduate students in the MAS graduate program.

9. In the Media Lab, I am the director of a greater than $2 Million/year multi-sponsor research consortium entitled "Digital Life," which I formed in 1997. This program engages ten members of the faculty of the laboratory and does research on communications, human augmentation systems and intelligent systems.

10. I am co-principle investigator of the MIT Communications Futures Program that engages faculty from the Media Laboratory, the Sloan School of Management, and Computer science Artificial Intelligence Laboratory. This program is funded in part by the Cambridge-MIT Institute and in part by industrial sponsors who are members of the industry or potential stakeholders in the future of communications. The program research addresses critical issues including technologies, regulatory and economic structures, and basic research in radio and spectrum management.

11. I am co-principle investigator of a funded National Science Foundation proposal on radio technology that is the core research of my group in the Media Lab.

12. I have over twenty-five years experience as a professional researcher and teacher and I have supervised over 75 graduate and undergraduate theses on topics including communications, digital video coding and representation, digital television, networking, the human-computer interface, and internet systems. I have also supervised many graduate level research projects that include systems that make use of transceivers, such as IR transceivers, network transceivers, and radio transceivers. For six years, I taught a course at MIT on digital video.

13. I have written and co-written more than 40 papers that have appeared in journals and conference proceedings, I have testified before congressional subcommittees on issues of digital television, and I have given over 130 industrial and conference presentations and talks on digital media, communications and research techniques.

14. I have six patents issued and several in review.

15. I was a member of the ISO Motion Picture Experts Group (MPEG) from its second meeting in Torino in 1988 through the definition of the MPEG-2 video standard. This is an international standard for decoding compressed digital video and audio. I and my graduate students developed models for MPEG video compression that contributed to the development of the standard. I pioneered video interaction systems for use in mapping and education, and I developed early techniques for networked distribution of video and its compression for scalable, interactive systems.

16. My current curriculum vitae is attached as Exhibit 1 hereto.

## II. QUESTION PRESENTED AND STATEMENT OF OPINIONS

17. I was asked by counsel for DIRECTV to provide expert opinions on the meaning that the term "transceiver" would have to a hypothetical person of ordinary skill in the art to which the claimed subject matter of the '702 patent pertains on or about the effective filing date of the patent application. I was told by DIRECTV's counsel that the effective filing date of the patent application is January 7, 1991.

18. For purposes of forming my opinions and conclusions, I have reviewed the following variety of materials:

a. U.S. Patent No. 6,144,702 (the '702 patent) titled "Audio and Video Transmission and Receiving System" and designating Paul Yurt and H. Lee Browne as the named inventors, attached as Exhibit 2 hereto.

b. prosecution history of the '702 patent, attached as Exhibit 3 hereto.

c. Plaintiff Acacia Media Technologies Corporation's Disclosure of Asserted Claims and Preliminary Infringement Contentions Re '992 and '702 Patents To The DIRECTV GROUP, INC., attached as Exhibit 4 hereto.

d. Hon. James Ware's Markman Order, dated July 12, 2004, attached as Exhibit 5 hereto.

e. the following dictionary definitions of "transceiver":

a) IEEE Standard Dictionary of Electrical and Electronics Terms (4th ed. 1988) (IEEE 4th edition), attached as Exhibit 6 hereto.

b) IEEE Standard Dictionary of Electrical and Electronics Terms (5th ed. 1993) (IEEE 5th edition), attached as Exhibit 7 hereto.

c) IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed. 1996) (IEEE 6th edition), attached as Exhibit 8 hereto.

d) Computer Dictionary and Handbook (1980), also for the definition of the term "terminal," attached as Exhibit 9 hereto.

e) Dictionary of Information Technology (2nd ed. 1986), also for the definition of the term "terminal," attached as Exhibit 10 hereto.

f) Dictionary of Computing (3rd ed. 1990), attached as Exhibit 11 hereto.

19. Based on my experience and knowledge, it is my opinion that a person of ordinary skill in the art in 1991 would understand the term "transceiver" to mean "a singular device that interfaces with a single communication medium and that is capable of sending and receiving data over that communication medium."

20. After reviewing and analyzing the '702 patent and its prosecution history, it is my opinion that the term "transceiver" was used in the '702 patent in a manner consistent with the definition of that term as understood by a person of ordinary skill in the art in 1991.

## III. DETAILED BASES FOR OPINIONS

21. As an initial matter, I was asked to define the level of skill of the hypothetical person of ordinary skill in the art to which the claimed subject matter of the '702 patent pertains on or about January of 1991. The relevant art is the subject matter taught by the '702 patent. In my opinion, none of the patent's subject matter is at a high practical or theoretical level. Thus, in my opinion, a hypothetical person of ordinary skill in January 1991 would have a degree of Bachelor of Science in Electrical Engineering, Computer Science or Computer Engineering.

22. The Court defined "transceiver" in its July 12, 2004, Markman Order as "a singular device capable of sending and receiving information." Although the Court's definition of "transceiver" is substantially correct, it is my opinion that the Court's definition is not complete. Missing from the Court's definition is that the transceiver must send and receive data over the same communication medium. That a transceiver sends and receives data over the same medium is implicitly understood by a person of ordinary skill in the art, and woven through all the definitions in relevant references.

23. A transceiver is an interface between a communication medium and an operator or a local system. For example, an Ethernet transceiver both sends and receives information over an Ethernet network cable. Likewise, a radio transceiver both sends and receives information over the radio. In the examples above, and in all instances, a transceiver operates and interfaces with a single communication medium to send and receive information over that medium.

24. In view of the context of the subject matter that is claimed and disclosed in the '702 patent, a definition that explicitly recognizes that a transceiver sends and receives

information over a single communication medium is critical. Indeed, an unrestricted definition is unworkable as it generalizes the meaning of a transceiver to any device that can transmit and receive information. For example, a photocell is a device that produces electrical output that varies in response to incident radiation, especially to light, i.e., a photocell receives information by way of photons and sends information by way of electrical energy. Also, an audio speaker converts electric signals to audible sound, i.e., a speaker receives information by electrical energy and sends information by way of sound. Even a receiver can be said to capable of receiving information and sending that information to some other device or location. One skilled in the art would not think of a photocell or an audio speaker or a receiver as a transceiver.

25. "Transceiver" is a technical term; and it is distinct from a photocell, an audio speaker, or a receiver. Without the limitation of sending and receiving data over the same medium, the definition loses the distinctive quality of a transceiver as understood by a person of ordinary skill in the art. Another example is found in the '702 patent itself. The reception system 200 in Figure 6 is illustrated receiving a transmission from the transmission system and sending information or outputting information to a device such as a television, audio amplifier or audio/video recorder. Yet the patentees did not refer to the reception system 200 as a transceiver. A person of ordinary skill in the art also would not refer to the reception system 200 as a transceiver. Accordingly, the Court's definition, as it stands, is also not consistent with the '702 patent specification.

26. That the patentees understood the transceiver to send and receive information over a common communication medium is indicated in the specification of the '702 patent. The specification describes an audio and video transmission and receiving system wherein a compressed data library is maintained in the transmission system. Data is stored in the compressed data library, and is transmitted to the user's reception system at a remote location.

The '702 patent at 15:30-34 states the preferred embodiment includes means by which to access users via common access lines such as standard telephone, ISDN or B-ISDN, microwave, DBS, cable television systems, MAN, high speed modems, or communication couplers. The '702 patent provides at 15:19-22 that the "transmission system 100 of the present invention preferably … includes transmitter means 122, … , for sending at least a portion of a specific file to at least one remote location." The transmitter 122 places the formatted data onto a communication channel, and sends the data to the user in either a two-way or a one way-communication process. *See,* 16:9-16. Figure 2b of the '702 patent illustrates the transmitter means 122 that performs data transmission to and reception from the user's reception system.

27. In describing the two-way communication process between the transmission system 100 and the reception system 200, the '702 patent at 16:23-29 provides that "[i]n order that reception is performed efficiently, the reception system 200 confirms reception of the … data … before receiving the remaining data … whenever possible (step 5060). After all data … have been received and reception is confirmed, the communication controller breaks the physical connection to the reception system 200 (step 5070)." (emphasis added). Figure 2b illustrates a plurality of transceivers each coupled to a single communication medium (ISDN, B ISDN, LAN or MAN, and the telephone line). Within each communication medium, a plurality of channels are illustrated with parallel bi-directional arrows. The bi-directional arrows signify that the communication is a two-way process over the same communication medium. The transceivers are each shown interfacing with a single communication medium because a transceiver cannot send and receive data over different mediums. Accordingly, consistent with the ordinary meaning, one skilled in the art would understand the '702 patent to mean that a transceiver is a two-way communication device that interfaces with a single communication medium and that is capable of sending and receiving data over that communication medium.

28. Further with respect to the two-way communication process, because a transceiver 201, illustrated in Figure 6 and described at 17:22-25, is disclosed as part of the reception system 200 that receives the data from the transmission system, one skilled in the art would understand that the transceiver 201, of the reception system 200, transmits the confirmation of the reception back to the transmission system. Indeed, the only device illustrated in Figure 6 that is capable of transmitting to the transmission system a confirmation that the initial data block has been received is transceiver 201.

29. Therefore, the meaning of "transceiver" as described in the '702 patent and understood by the patentee in 1991 is consistent with the ordinary and customary meaning of "transceiver" that would be given by the person of ordinary skill in the art in January 1991. As discussed below, implicit in every transceiver definition is the fact that a transceiver is a device that interfaces with a single communication medium and that is capable of sending and receiving data over that communication medium.

30. It is my understanding that the Court was presented with the 5th edition (1993) [Exhibit 7] and 6th edition (1996) [Exhibit 8] of the IEEE dictionaries as evidence of the ordinary meaning of "transceiver." However, because the relevant time is January 1991, it is my opinion that the 4th edition (1988) [Exhibit 6] and the 5th edition (1993) of the IEEE dictionaries provide better reference to the ordinary and customary meaning to those skilled in the art. The definitions recited in the 4th and 5th editions of the IEEE dictionaries are identical and include two definitions. The first definition is directed to data transmission and the second definition is directed to navigation aid terms. The data transmission definition reads,

> **transceiver** (1) (data transmission). The combination of radio transmitting and receiving equipment in a common housing, usually for

> portable or mobile use, and employing common circuit components for both transmitting and receiving.

This definition explicitly provides that the transmitting and receiving functions occur over the radio - a single common communication medium. Therefore, IEEE definitions are consistent with the ordinary meaning of the term "transceiver" as understood by one skilled in the art.

31. It is also my understanding that the Court was presented with the Dictionary of Information Technology, 2nd edition [Exhibit 10]. Here, a transceiver is defined as,

> **transceiver** In communications, (1) a radio transmitter and receiver unit in one housing and employing some common circuits, normally used for portable or mobile operations. (2) a terminal device that can both transmit and receive signals.

The first definition explicitly provides radio to be the common communication medium. The second definition is germaine to the data communications field. This is evident by considering the definition of "terminal." In the Dictionary of Information Technology, "terminal" is defined as, "(3) In communication, a point in the system where information can be transmitted or received." In the Computer Dictionary Handbook, 1980 [Exhibit 9], "terminal" is defined as "1. A point at which information can enter or leave a communication network." Thus, a transceiver is a device that can access a communication network to receive and transmit information. This is achieved by interfacing with, for example, a network cable - a single common communication medium. Therefore, both transceiver definitions recited in the Dictionary of Information Technology are consistent with the ordinary meaning of the term "transceiver" as understood by one skilled in the art.

The Computer Dictionary and Handbook, which was also presented to the Court as evidence of the ordinary meaning of "transceiver," also defines transceiver as a terminal device, and is therefore consistent with the ordinary meaning of the term "transceiver" for the same reasons.

32. It is also my understanding that the Court was presented with Dictionary of Computing, 3rd edition [Exhibit 11]. Here, a transceiver is defined as,

> **transceiver** *Acronym for* transmitter and receiver. A device that can both transmit and receive signals on a communication medium. Many communication devices, including *modems, *codecs, and terminals, are transceivers.

This definition explicitly recites that the transmitting and receiving occur over *a* communication medium - a single communication medium. Here again, the definition is consistent with the ordinary meaning of the term "transceiver" as understood by one skilled in the art.

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, and I executed this declaration on 28 July, 2005 at Cambridge, Massachusetts.

ANDREW B. LIPPMAN